

List of Plants

C MANGANESE

Chemid

MANGANESE

Dosage

RDA=4 mg/day

Davies, S., and Stewart, A. 1990. Nutritional Medicine. Avon Books, New York. 509pp.

*Unless otherwise noted all references are to Duke, James A. 1992. Handbook of phytochemical constituents of GRAS herbs and other economic plants. Boca Raton, FL. CRC Press.

Plant	Plant Part	Low PPM	High PPM	StdDev	*Reference
Abelmoschus esculentus	Fruit	10.0	100.0	0.26	USDA's Ag Handbook 8 and sequelae)
Acacia nilotica	Plant	--	--		*
Acacia catechu	Plant	--	--		*
Acanthopanax gracilistylis	Root Bark	--	74.0	-0.12	*
Achillea millefolium	Plant	1.0	5.0	-0.66	*
Achyranthes bidentata	Root	40.0	66.0	0.24	*
Aconitum carmichaelii	Tuber	--	18.0	-0.53	*
Acorus calamus	Rhizome	--	309.0	1.22	Chen, H.C. and Lin, S.M. 1988. Determination of Mineral Elements in Certain Crude Drugs (Part 1), Kaohsiung J. Med. Sci., 4: 259-272.
Actaea dahurica	Rhizome	--	74.0	-0.34	Suzuki, A., Morimoto, I., and Okitsu, T., Elution of Metals from Crude Drugs, Shoykugaku Zasshi 36(3):190-195.
Actaea racemosa	Root	--	1.4	-0.53	Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
Agathosma betulina	Leaf	--	675.0	0.66	Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
Akebia quinata	Stem	--	310.0	-0.97	*
Albizia julibrissin	Bark	--	33.0	-0.46	*
Alisma plantago-aquatica	Rhizome	360.0	479.0	2.36	*
Allium cepa	Bulb	1.0	38.0	1.4	*
Allium schoenoprasum	Leaf	3.0	40.0	-0.39	Revised USDA data received 1993.
Allium sativum var. sativum	Root	0.5	1.4	-0.53	*
Allium sativum var. sativum	Bulb	1.6	15.3	-0.56	*
Allium cepa	Seed	--	19.4	-0.43	*
Alocasia macrorrhiza	Root	6.0	21.0	-0.3	*
Aloe spp.	Leaf	--	0.6	-0.46	*
Aloe vera	Leaf	--	0.6	-0.46	Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
Alpinia officinarum	Plant	--	--		*
Althaea officinalis	Root	0.5	4.4	-0.49	*
Amomum xanthioides	Seed	--	565.0	6.37	*

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<i>Amorphophallus campanulatus</i>	Root	3.0	14.0	-0.38	*	
<i>Amphicarpa bracteata</i>	Shoot	--	120.0	-0.96	*	
<i>Anacardium occidentale</i>	Seed	--	8.4	-0.56	*	
<i>Ananas comosus</i>	Fruit	12.0	209.0	0.97	USDA's Ag Handbook 8 and sequelae)	
<i>Anemarrhena asphodeloides</i>	Rhizome	10.0	40.0	-0.57	*	
<i>Anethum graveolens</i>	Plant	8.0	435.0	2.42	*	
<i>Anethum graveolens</i>	Fruit	--	18.0	-0.28	*	
<i>Anethum graveolens</i>	Seed	--	18.0	-0.44	USDA's Ag Handbook 8 and sequelae)	
<i>Angelica sinensis</i>	Root	0.6	2.6	-0.51	*	
<i>Angelica laxiflora</i>	Root	--	83.0	0.45	*	
<i>Angelica dahurica</i>	Root	--	110.0	0.77	*	
<i>Annona muricata</i>	Fruit	--	2.7	-0.39	*	
<i>Annona cherimola</i>	Seed	80.0	100.0	0.58	*	
<i>Annona squamosa</i>	Leaf	--	253.0	-0.04	*	
<i>Annona cherimola</i>	Fruit	1.0	5.0	-0.37	*	
<i>Anthriscus cerefolium</i>	Leaf	--	21.0	-0.42	*	
<i>Apium graveolens</i>	Pt	1.0	33.0	-1.0	USDA's Ag Handbook 8 and sequelae)	
<i>Apium graveolens</i>	Seed	1.3	76.0	0.28	*	
<i>Apium graveolens</i>	Fruit	1.3	6.3	-0.36	*	
<i>Apium graveolens</i>	Root	0.74	23.0	-0.27	ACTA AGRIC SCAND SUPPL 22: 1980	
<i>Arachis hypogaea</i>	Seed	11.0	30.0	-0.29	*	
<i>Arctium lappa</i>	Root	1.4	6.0	-0.47	*	
<i>Arctostaphylos uva-ursi</i>	Leaf	2.0	16.5	-0.43	*	
<i>Areca catechu</i>	Seed	--	67.0	0.17	*	
<i>Arisaema consanguineum</i>	Rhizome	--	4.0	-0.81	*	
<i>Aristolochia debilis</i>	Fruit	--	33.0	-0.19	*	
<i>Armoracia rusticana</i>	Root	1.5	8.2	-0.45	*	
<i>Artemisia vulgaris</i>	Plant	160.0	170.0	0.52	Chem. & Pharm. Bull. 38: 2205.	
<i>Artemisia dracunculus</i>	Plant	--	80.0	-0.12	USDA's Ag Handbook 8 and sequelae)	
<i>Artemisia capillaris</i>	Plant	--	37.0	-0.43	*	
<i>Artocarpus heterophyllus</i>	Fruit	2.0	7.0	-0.36	*	
<i>Artocarpus altilis</i>	Fruit	0.6	3.5	-0.38	*	
<i>Asiasarum heterotropoides</i>	Root	120.0	248.0	2.42	*	
<i>Asiasarum</i>	Root	120.0	248.0	2.42	*	

<i>Asimina triloba</i>	Fruit	25.0	111.0	0.33	*
<i>Aspalathus linearis</i>	Shoot	--	120.0	-0.96	*
<i>Asparagus lucidus</i>	Root	--	10.0	-0.43	*
<i>Asparagus officinalis</i>	Root	0.2	2.0	-0.52	*
<i>Asparagus officinalis</i>	Shoot	2.0	100.0	-0.98	*
<i>Astragalus membranaceus</i>	Root	--	--		*
<i>Atractylodes lancea</i>	Rhizome	--	39.0	-0.58	*
<i>Atractylodes ovata</i>	Rhizome	30.0	139.0	0.09	*
<i>Avena sativa</i>	Seed	20.0	204.0	1.87	Jim Duke's personal files.*
<i>Avena sativa</i>	Plant	0.1	0.5	-0.69	*
<i>Averrhoa carambola</i>	Fruit	1.0	11.0	-0.33	USDA's Ag Handbook 8 and sequelae)
<i>Barosma betulina</i>	Leaf	--	675.0	0.66	*
<i>Belamcanda chinensis</i>	Rhizome	--	13.0	-0.75	Chen, H.C. and Lin, S.M. 1988. Determination of Mineral Elements in Certain Crude Drugs (Part 1), Kaohsiung J. Med. Sci., 4: 259-272.
<i>Berberis vulgaris</i>	Root	--	6.0	-0.47	Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
<i>Berberis vulgaris</i>	Bark	--	6.0	-0.64	*
<i>Berberis vulgaris</i>	Fruit	--	72.0	0.07	Jim Duke's personal files.
<i>Bertholletia excelsa</i>	Seed	--	8.0	-0.57	USDA's Ag Handbook 8 and sequelae)
<i>Beta vulgaris</i>	Root	3.0	90.0	0.53	*
<i>Blechnum orientale</i>	Rhizome	--	28.0	-0.65	*
<i>Bletilla striata</i>	Tuber	--	10.0	-0.63	Chen, H.C. and Lin, S.M. 1988. Determination of Mineral Elements in Certain Crude Drugs (Part 1), Kaohsiung J. Med. Sci., 4: 259-272.
<i>Boehmeria nivea</i>	Plant	80.0	140.0	0.31	*
<i>Brassica oleracea var. sabellica l.</i>	Leaf	8.0	50.0	-0.38	*
<i>Brassica napus var. napobrassica</i>	Root	1.3	17.0	-0.34	ACTA AGRIC SCAND SUPPL 22: 1980
<i>Brassica rapa</i>	Seed	--	20.0	-0.42	*
<i>Brassica oleracea var. botrytis l.</i>	Leaf	2.0	80.0	-0.33	*
<i>Brassica oleracea var. viridis l.</i>	Leaf	4.0	60.0	-0.36	*
<i>Brassica oleracea var. italicica</i>	Leaf	2.0	80.0	-0.33	*
<i>Brassica oleracea var. botrytis l.</i>	Flower	1.5	48.0	-0.22	*
<i>Brassica pekinensis</i>	Leaf	9.5	10.5	-0.44	*
<i>Brassica nigra</i>	Leaf	3.0	53.0	-0.37	USDA's Ag Handbook 8 and sequelae)
<i>Brassica oleracea var. capitata l.</i>	Leaf	1.0	45.0	-0.39	*
<i>Brassica oleracea var. gemmifera</i>	Leaf	3.0	24.0	-0.42	USDA's Ag Handbook 8 and sequelae)
<i>Brassica rapa</i>	Root	0.6	7.0	-0.46	*
<i>Broussonetia</i>	Fruit	--	81.0	0.13	*

Bupleurum chinense	Root	0.6	5.0	-0.49	*
Cajanus cajan	Seed	17.0	21.0	-0.41	*
Camellia sinensis	Leaf	--	1200.0	1.54	*
Canavalia ensiformis	Seed	--	11.0	-0.53	*
Capsicum frutescens	Fruit	2.0	20.0	-0.27	USDA's Ag Handbook 8 and sequelae)
Capsicum annuum	Fruit	0.4	1.4	-0.39	*
Carica papaya	Fruit	0.1	1.0	-0.4	*
Carthamus tinctorius	Flower	0.4	3.1	-0.38	*
Carum carvi	Seed	13.0	34.0	-0.24	*
Carum carvi	Fruit	13.0	34.0	-0.18	*
Carya glabra	Shoot	38.0	3300.0	1.56	*
Carya ovata	Shoot	37.0	2700.0	1.08	*
Carya ovata	Seed	--	58.0	0.06	*
Carya illinoensis	Seed	--	30.0	-0.29	*
Cassia tora	Seed	--	24.0	-0.37	*
Castanea mollissima	Seed	12.0	36.0	-0.22	*
Castanea dentata	Seed	19.0	44.0	-0.12	*
Castanea sativa	Seed	5.0	13.0	-0.5	*
Catalpa ovata	Fruit	--	14.0	-0.31	*
Caulophyllum thalictroides	Root	3.0	23.7	-0.26	*
Celosia cristata	Flower	--	109.0	-0.01	*
Centella asiatica	Leaf	3.0	27.7	-0.41	*
Chaenomeles lagenaria	Fruit	--	15.0	-0.3	*
Chamaemelum nobile	Flower	--	52.0	-0.21	*
Chenopodium album	Seed	--	21.0	-0.41	*
Chondrus crispus	Plant	--	38.0	-0.42	Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
Chrysanthemum parthenium	Leaf	1.5	8.1	-0.45	*
Chrysanthemum parthenium	Plant	--	81.0	-0.11	*
Cicer arietinum	Seed	21.0	26.0	-0.34	USDA's Ag Handbook 8 and sequelae)
Cichorium endivia	Leaf	4.0	72.0	-0.34	*
Cimicifuga racemosa	Root	0.3	1.4	-0.53	*
Cimicifuga dahurica	Rhizome	--	74.0	-0.34	*
Cinnamomum sieboldii	Root Bark	--	220.0	2.11	*
Cinnamomum aromaticum	Bark	167.0	600.0	3.34	*
Cinnamomum verum	Leaf	--	101.6	-0.29	*
Cinnamomum sieboldii	Bark	--	360.0	1.73	*
Cinnamomum verum	Bark	66.0	140.0	0.26	*
Cinnamomum burmannii	Bark	--	170.0	0.46	*

Citriacne Salsa	Plant	--	20.0	-0.55	--
<i>Citrullus lanatus</i>	Fruit	--	4.0	-0.38	Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.
<i>Citrus reticulata</i>	Fruit	--	4.6	-0.37	*
<i>Citrus aurantium</i>	Fruit	--	8.0	-0.35	Suzuki, A., Morimoto, I., and Okitsu, T., Elution of Metals from Crude Drugs, Shoykugaku Zasshi 36(3):190-195.
<i>Citrus paradisi</i>	Fruit	--	7.7	-0.35	*
<i>Citrus medica</i>	Fruit	--	9.0	-0.34	*
<i>Citrus sinensis</i>	Fruit	--	8.0	-0.35	*
<i>Cnicus benedictus</i>	Plant	0.3	2.1	-0.68	*
<i>Cnidium officinale</i>	Rhizome	--	30.0	-0.64	*
<i>Cocos nucifera</i>	Seed	9.0	281.0	2.83	*
<i>Coix lacryma-jobi</i>	Seed	--	26.0	-0.34	Suzuki, A., Morimoto, I., and Okitsu, T., Elution of Metals from Crude Drugs, Shoykugaku Zasshi 36(3):190-195.
<i>Colocasia esculenta</i>	Root	1.3	7.6	-0.46	*
<i>Colocasia esculenta</i>	Leaf	--	45.0	-0.39	*
<i>Coptis spp</i>	Rhizome	260.0	398.0	1.82	*
<i>Coptis japonica</i>	Rhizome	260.0	398.0	1.82	*
<i>Coptis chinensis</i>	Rhizome	260.0	398.0	1.82	*
<i>Coriandrum sativum</i>	Leaf	--	64.0	-0.35	USDA's Ag Handbook 8 and sequelae)
<i>Coriandrum sativum</i>	Fruit	18.0	19.0	-0.28	*
<i>Cornus officinalis</i>	Fruit	--	11.0	-0.33	*
<i>Corylus avellana</i>	Seed	16.0	100.0	0.58	*
<i>Crataegus laevigata</i>	Fruit	0.4	1.4	-0.39	*
<i>Crataegus rhipidophylla</i>	Fruit	--	14.0	-0.31	Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
<i>Crataegus laevigata</i>	Flower	--	--		*
<i>Crataegus cuneata</i>	Fruit	--	12.0	-0.32	*
<i>Crocus sativus</i>	Silk Stigma Style	--	284.0	1.0	USDA's Ag Handbook 8 and sequelae)
<i>Cucumis sativus</i>	Fruit	0.5	98.0	0.24	*
<i>Cucumis melo</i>	Fruit	0.4	7.7	-0.35	*
<i>Cucurbita spp</i>	Fruit	1.0	27.0	-0.23	*
<i>Cucurbita pepo</i>	Seed	40.0	100.0	0.58	*
<i>Cuminum cyminum</i>	Fruit	24.0	33.0	-0.19	*
<i>Cuminum cyminum</i>	Seed	24.0	33.0	-0.26	*
<i>Curcuma longa</i>	Plant	2.5	8.2	-0.64	*
<i>Curcuma longa</i>	Rhizome	33.0	78.0	-0.32	*
<i>Cymbopogon citratus</i>	Plant	--	104.0	0.05	Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
<i>Cynanchum atratum</i>	Root	--	341.0	3.53	*
<i>Cynara cardunculus</i>	Flower	2.0	17.0	-0.33	USDA's Ag Handbook 8 and sequelae)
<i>Cyperus rotundus</i>	Rhizome	--	28.0	-0.65	*
<i>Cypripedium pubescens</i>	Root	--	209.0	1.95	Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
<i>Cyrtosperma</i>	Root	2.2	12.0	-0.4	*

Daucus carota	Root	1.0	62.0	0.19	*
Dendrobium nobile	Stem	--	53.0	-1.19	*
Dioscorea sp.	Root	--	64.0	0.22	*
Dioscorea villosa	Root	1.5	6.4	-0.47	*
Dioscorea bulbifera	Rhizome	--	4.0	-0.81	*
Dioscorea alata	Plant	--	--		*
Diospyros virginiana	Stem	22.0	1080.0	-0.3	*
Diospyros virginiana	Leaf	25.0	1500.0	2.03	*
Drynaria fortunei	Rhizome	--	39.0	-0.58	*
Echinacea purpurea	Root	3.0	10.1	-0.43	*
Echinacea spp	Root	--	101.0	0.66	Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
Elaeagnus umbellatus	Fruit	6.0	34.0	-0.18	*
Elettaria cardamomum	Fruit	66.0	280.0	1.44	*
Eleutherococcus senticosus	Root	0.6	3.0	-0.51	*
Elytrigia repens	Plant	43.0	188.0	0.65	*
Ephedra spp	Plant	--	37.0	-0.43	*
Ephedra sinica	Plant	1.0	5.4	-0.66	*
Equisetum arvense	Plant	1.5	6.9	-0.65	*
Equisetum hyemale	Plant	--	12.0	-0.61	*
Eriobotrya japonica	Leaf	--	224.0	-0.09	Chen, H.C. and Lin, S.M. 1988. Determination of Mineral Elements in Certain Crude Drugs (Part 1), Kaohsiung J. Med. Sci., 4: 259-272.
Eriocaulon sp	Leaf	--	96.0	-0.3	*
Eriodictyon californicum	Leaf	20.0	91.0	-0.31	*
Erythroxylum novogranatense	Leaf	35.0	36.0	-0.4	*
Erythroxylum novogranatense	Leaf	28.0	55.0	-0.37	*
Erythroxylum coca	Leaf	26.0	71.0	-0.34	*
Eucommia ulmoides	Bark	--	135.0	0.23	*
Euodia rutaecarpa	Fruit	--	63.0	0.01	*
Eupatorium odoratum	Leaf	--	70.0	-0.34	Tramil
Eupatorium perfoliatum	Plant	0.5	5.0	-0.66	*
Euphrasia officinalis	Plant	2.0	12.6	-0.6	*
Fallopia japonica	Plant	59.0	330.0	1.67	Chem. & Pharm. Bull. 38: 2205.
Ficus carica	Fruit	1.0	7.0	-0.36	USDA's Ag Handbook 8 and sequelae)
Firmiana simplex	Seed	--	23.0	-0.38	*
Foeniculum vulgare	Seed	0.5	4.3	-0.61	*
Foeniculum vulgare	Fruit	24.0	721.0	4.35	*
Forsythia suspensa	Fruit	--	120.0	0.39	*
Fragaria spp	Fruit	1.4	125.0	0.42	*
Frangula purshiana	Bark	0.4	1.4	-0.67	*

<i>Fradixius</i> <i>rhynchophylla</i>	DRIK	--	09.0	-0.00	--
<i>Fritillaria</i> <i>thunbergii</i>	Bulb	--	12.0	-0.85	Chen, H.C. and Lin, S.M. 1988. Determination of Mineral Elements in Certain Crude Drugs (Part 1), Kaohsiung J. Med. Sci., 4: 259-272.
<i>Fucus</i> <i>vesiculosus</i>	Plant	0.9	7.6	-0.64	*
<i>Gardenia</i> <i>jasminoides</i>	Fruit	16.0	19.0	-0.28	*
<i>Gastrodia elata</i>	Rhizome	--	26.0	-0.66	*
<i>Genipa</i> <i>americana</i>	Fruit	--	1.0	-0.4	*
<i>Genipa</i> <i>americana</i>	Seed	--	6.0	-0.59	*
<i>Gentiana scabra</i>	Root	--	98.0	0.62	*
<i>Gentiana lutea</i>	Root	0.5	2.3	-0.52	*
<i>Geranium</i> <i>thunbergii</i>	Plant	--	49.0	-0.34	*
<i>Ginkgo biloba</i>	Seed	1.0	3.0	-0.63	USDA's Ag Handbook 8 and sequelae)
<i>Ginkgo biloba</i>	Leaf	0.7	3.0	-0.45	*
<i>Glechoma</i> <i>hederacea</i>	Plant	82.0	100.0	0.02	Chem. & Pharm. Bull. 38: 2205.
<i>Glehnia littoralis</i>	Root	--	70.0	0.29	*
<i>Glycine max</i>	Seed	8.0	60.0	0.08	USDA's Ag Handbook 8 and sequelae)
<i>Glycyrrhiza</i> <i>glabra</i>	Root	0.7	4.7	-0.49	*
<i>Glycyrrhiza</i> <i>uralensis</i>	Root	13.0	26.0	-0.24	*
<i>Gymnema</i> <i>sylvestre</i>	Leaf	0.4	2.0	-0.46	*
<i>Harpagophytum</i> <i>procumbens</i>	Root	2.0	7.7	-0.45	*
<i>Helianthus</i> <i>annuus</i>	Seed	20.0	21.0	-0.41	USDA's Ag Handbook 8 and sequelae)
<i>Helianthus</i> <i>tuberosus</i>	Tuber	3.0	228.0	2.21	*
<i>Hibiscus</i> <i>sabdariffa</i>	Flower	2.0	15.1	-0.34	*
<i>Hordeum</i> <i>vulgare</i>	Seed	2.0	120.0	0.83	*
<i>Hordeum</i> <i>vulgare</i>	Stem	--	60.0	-1.19	*
<i>Hordeum</i> <i>vulgare</i>	Sprout Seedling	--	26.0	0.84	Chen, H.C. and Lin, S.M. 1988. Determination of Mineral Elements in Certain Crude Drugs (Part 1), Kaohsiung J. Med. Sci., 4: 259-272.
<i>Houttuynia</i> <i>cordata</i>	Plant	--	120.0	0.17	Suzuki, A., Morimoto, I., and Okitsu, T., Elution of Metals from Crude Drugs, Shoykugaku Zasshi 36(3):190-195.
<i>Humulus lupulus</i>	Fruit	--	8.1	-0.35	Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
<i>Humulus lupulus</i>	Flower	1.5	8.1	-0.36	*
<i>Hydrangea</i> <i>arborescens</i>	Root	7.0	18.7	-0.32	*
<i>Hydrastis</i> <i>canadensis</i>	Root	2.4	8.5	-0.44	*
<i>Hyoscyamus</i> <i>niger</i>	Seed	--	166.0	1.4	*
<i>Inula helenium</i>	Root	0.2	0.8	-0.54	*
<i>Inula helenium</i>	Plant	--	--		*
<i>Ipomoea</i> <i>batatas</i>	Root	1.0	15.0	-0.37	*
<i>Isatis tinctoria</i>	Root	--	181.0	1.62	*
<i>Juglans nigra</i>	Seed	30.0	46.0	-0.09	*
<i>Juglans regia</i>	Seed	27.0	32.0	-0.27	USDA's Ag Handbook 8 and sequelae)
<i>Juglans nigra</i>	Fruit	23.0	24.0	-0.25	*
<i>Juglans cinerea</i>	Seed	31.0	72.0	0.23	*

Species	Part	---	---	---	---
<i>Juncus effusus</i>	Pith	--	171.0	1.0	*
<i>Juniperus virginiana</i>	Shoot	11.0	2640.0	1.04	*
<i>Juniperus communis</i>	Fruit	2.0	6.3	-0.36	*
<i>Jussiaea repens</i>	Plant	--	799.0	5.03	*
<i>Lablab purpureus</i>	Seed	--	39.0	-0.18	*
<i>Lactuca sativa</i>	Leaf	1.0	240.0	-0.06	*
<i>Lantana camara</i>	Shoot	308.0	412.0	-0.73	*
<i>Larrea tridentata</i>	Plant	2.0	5.2	-0.66	*
<i>Laurus nobilis</i>	Leaf	--	82.0	-0.32	USDA's Ag Handbook 8 and sequelae)
<i>Lens culinaris</i>	Sprout Seedling	5.0	18.0	-1.4	USDA's Ag Handbook 8 and sequelae)
<i>Lepidium meyenii</i>	Root	--	8.0	-0.45	Taylor, Leslie. 2005. The Healing Power of Rainforest Herbs. SquareOne Publisher, Garden City Park, NY. 519 pp.
<i>Ligustrum japonicum</i>	Fruit	--	26.0	-0.23	*
<i>Ligustrum lucidum</i>	Fruit	--	26.0	-0.23	Chen, H.C. and Lin, S.M. 1988. Determination of Mineral Elements in Certain Crude Drugs (Part 1), Kaohsiung J. Med. Sci., 4: 259-272.
<i>Linum usitatissimum</i>	Seed	50.0	70.0	0.21	*
<i>Linum usitatissimum</i>	Hay	--	8.1	-1.0	*
<i>Liquidambar styraciflua</i>	Stem	14.0	2400.0	0.85	*
<i>Lobelia inflata</i>	Leaf	0.9	8.0	-0.45	*
<i>Lonicera japonica</i>	Flower	--	70.0	-0.15	*
<i>Lophatherum gracile</i>	Plant	--	445.0	2.49	*
<i>Lycium chinense</i>	Root Bark	--	91.0	0.14	Chen, H.C. and Lin, S.M. 1988. Determination of Mineral Elements in Certain Crude Drugs (Part 1), Kaohsiung J. Med. Sci., 4: 259-272.
<i>Lycium chinense</i>	Fruit	--	21.0	-0.27	Chen, H.C. and Lin, S.M. 1988. Determination of Mineral Elements in Certain Crude Drugs (Part 1), Kaohsiung J. Med. Sci., 4: 259-272.
<i>Lycopersicon esculentum</i>	Fruit	0.6	100.0	0.26	*
<i>Lycopodium clavatum</i>	Plant	--	100.0	0.02	Chen, H.C. and Lin, S.M. 1988. Determination of Mineral Elements in Certain Crude Drugs (Part 1), Kaohsiung J. Med. Sci., 4: 259-272.
<i>Lygodium japonicum</i>	Pollen Or Spore	--	191.0		*
<i>Magnolia kobus</i>	Flower	--	42.0	-0.24	*
<i>Magnolia fargesii</i>	Flower	--	42.0	-0.24	*
<i>Magnolia denudata</i>	Flower	--	42.0	-0.24	*
<i>Magnolia officinalis</i>	Bark	--	120.0	0.13	*
<i>Malus domestica</i>	Fruit	--	29.0	-0.21	*
<i>Mangifera indica</i>	Fruit	0.2	12.2	-0.32	*
<i>Manihot esculenta</i>	Root	0.5	2.5	-0.52	*
<i>Medicago sativa</i>	Plant	0.5	2.5	-0.68	*
<i>Mentha spicata</i>	Leaf	11.0	77.0	-0.33	USDA's Ag Handbook 8 and sequelae)
<i>Mentha arvensis</i> var. <i>piperascens</i>	Plant	--	44.0	-0.38	Suzuki, A., Morimoto, I., and Okitsu, T., Elution of Metals from Crude Drugs, Shoykugaku Zasshi 36(3):190-195.
<i>Mentha x piperita</i>	Leaf	0.9	6.1	-0.45	*
<i>Mentha pulegium</i>	Plant	--	83.0	-0.1	Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.

<i>charantia</i>					Res.Cambridge Printing Works, New Delhi.487 pp;ICMR.1987.Medicinal Plants of India.Vol.2.Indian Council of Med. Res.Cambr. Printing Works,New Delhi.600pp
<i>Morinda</i> sp	Root	--	520.0	5.66	*
<i>Morus alba</i>	Root Bark	15.0	37.0	-0.68	*
<i>Murraya</i> sp	Fruit	0.6	1.8	-0.39	*
<i>Musa x paradisiaca</i>	Fruit	0.6	1.8	-0.39	*
<i>Myrica cerifera</i>	Bark	1.4	6.4	-0.63	*
<i>Myristica fragrans</i>	Aril	--	14.0		*
<i>Myristica fragrans</i>	Seed	23.0	29.0	-0.31	*
<i>Nardostachys chinensis</i>	Rhizome	--	141.0	0.1	*
<i>Nasturtium officinale</i>	Plant	--	--		*
<i>Nelumbo nucifera</i>	Seed	--	125.0	0.89	*
<i>Nepeta cataria</i>	Plant	5.0	37.4	-0.43	*
<i>Notopterygium incisum</i>	Rhizome	--	39.0	-0.58	*
<i>Nyssa sylvatica</i>	Stem	2.0	1320.0	-0.09	*
<i>Nyssa sylvatica</i>	Leaf	12.0	2730.0	4.08	*
<i>Ocimum basilicum</i>	Leaf	--	32.0	-0.41	USDA's Ag Handbook 8 and sequelae)
<i>Oenothera biennis</i>	Seed	5.0	168.0	1.43	*
<i>Ophiopogon japonicus</i>	Tuber	5.0	27.0	-0.41	*
<i>Origanum majorana</i>	Plant	--	54.0	-0.31	USDA's Ag Handbook 8 and sequelae)
<i>Origanum vulgare</i>	Plant	--	47.0	-0.36	USDA's Ag Handbook 8 and sequelae)
<i>Paeonia moutan</i>	Root Bark	10.0	34.0	-0.73	*
<i>Paeonia lactiflora</i>	Root	14.0	20.0	-0.31	*
<i>Paeonia suffruticosa</i>	Root Bark	10.0	34.0	-0.73	*
<i>Panax ginseng</i>	Stem	--	--		*
<i>Panax ginseng</i>	Pt	--	--		*
<i>Panax japonicus</i>	Rhizome	--	43.0	-0.55	*
<i>Panax ginseng</i>	Fruit	--	--		*
<i>Panax ginseng</i>	Leaf	--	--		*
<i>Panax ginseng</i>	Root	0.4	1.9	-0.52	*
<i>Panax quinquefolius</i>	Plant	19.0	156.0	0.42	*
<i>Papaver somniferum</i>	Seed	29.0	68.0	0.18	*
<i>Parthenium integrifolium</i>	Root	0.2	1.0	-0.53	*
<i>Passiflora incarnata</i>	Flower	0.2	2.1	-0.39	*
<i>Pastinaca sativa</i>	Root	2.0	33.0	-0.15	*
<i>Perilla frutescens</i>	Plant	--	180.0	0.6	Suzuki, A., Morimoto, I., and Okitsu, T., Elution of Metals from Crude Drugs, Shoykugaku Zasshi 36(3):190-195.
<i>Persea americana</i>	Fruit	2.0	10.0	-0.34	*
<i>Petasites japonicus</i>	Plant	70.0	100.0	0.02	Chem. & Pharm. Bull. 38: 2205.
<i>Petroselinum</i>	Plant	0.5	6.0	-0.65	*

<i>Peucedanum decursivum</i>	Plant	43.0	69.0	-0.2	*
<i>Phaseolus vulgaris</i>	Seed	2.0	24.0	-0.37	*
<i>Phaseolus coccineus</i>	Seed	--	3.2	-0.63	*
<i>Phaseolus vulgaris</i>	Fruit	1.0	150.0	0.59	*
<i>Phaseolus acutifolius</i>	Seed	6.0	12.0	-0.52	*
<i>Phaseolus lunatus</i>	Seed	8.0	100.0	0.58	*
<i>Phellodendron amurense</i>	Bark	--	20.0	-0.54	*
<i>Phoenix dactylifera</i>	Seed	--	16.0	-0.47	Abstract (See species file)
<i>Phoenix dactylifera</i>	Fruit	3.0	45.0	-0.11	*
<i>Phyllanthus emblica</i>	Fruit	11.0	55.0	-0.04	*
<i>Pimenta dioica</i>	Bud	29.0	70.0		USDA's Ag Handbook 8 and sequelae)
<i>Pimpinella anisum</i>	Fruit	--	23.0	-0.25	*
<i>Pimpinella anisum</i>	Seed	--	23.0	-0.38	USDA's Ag Handbook 8 and sequelae)
<i>Pinellia ternata</i>	Tuber	11.0	46.0	-0.16	*
<i>Pinus echinata</i>	Shoot	51.0	1260.0	-0.06	*
<i>Piper nigrum</i>	Fruit	19.0	56.0	-0.03	*
<i>Pistacia vera</i>	Seed	3.2	3.4	-0.62	*
<i>Pisum sativum</i>	Seed	3.0	21.0	-0.41	*
<i>Pisum sativum</i>	Plant	--	85.0	-0.09	*
<i>Plantago psyllium</i>	Seed	0.4	1.6	-0.65	*
<i>Plantago major</i>	Seed	0.5	1.6	-0.65	*
<i>Plantago asiatica</i>	Plant	--	74.0	-0.16	*
<i>Platycodon grandiflorum</i>	Root	24.0	30.0	-0.19	*
<i>Polygala tenuifolia</i>	Root	--	24.0	-0.26	*
<i>Polygonum multiflorum</i>	Rhizome	--	26.0	-0.66	Chen, H.C. and Lin, S.M. 1988. Determination of Mineral Elements in Certain Crude Drugs (Part 1), Kaohsiung J. Med. Sci., 4: 259-272.
<i>Polygonum multiflorum</i>	Root	--	21.0	-0.3	Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
<i>Polygonum multiflorum</i>	Plant	--	18.5	-0.56	Leung, A. Y. and Foster, S. 1995. Encyclopedia of Common Natural Ingredients 2nd Ed. John Wiley & Sons, New York. 649 pp.
<i>Polystichum polyblepharum</i>	Plant	37.0	62.0	-0.25	*
<i>Portulaca oleracea</i>	Plant	--	--		*
<i>Prunella vulgaris</i>	Flower	--	96.0	-0.05	Chen, H.C. and Lin, S.M. 1988. Determination of Mineral Elements in Certain Crude Drugs (Part 1), Kaohsiung J. Med. Sci., 4: 259-272.
<i>Prunus cerasus</i>	Fruit	1.0	8.0	-0.35	*
<i>Prunus persica</i>	Bark	--	54.0	-0.32	*
<i>Prunus dulcis</i>	Seed	14.0	32.0	-0.27	*
<i>Prunus armeniaca</i>	Seed	1.0	11.0	-0.53	*
<i>Prunus persica</i>	Seed	--	17.0	-0.45	*
<i>Prunus domestica</i>	Fruit	0.22	25.5	-0.24	*
<i>Prunus persica</i>	Fruit	--	22.5	-0.26	*
<i>Psidium guajava</i>	Fruit	1.0	12.0	-0.32	USDA's Ag Handbook 8 and sequelae)

<i>Pseudocarpus tetragonolobus</i>	Seed	34.0	44.0	-0.12	*
<i>Pueraria pseudoohirsuta</i>	Root	3.0	5.0	-0.49	*
<i>Pulsatilla chinensis</i>	Root	--	119.0	0.88	*
<i>Pyrus communis</i>	Fruit	0.3	5.55	-0.37	*
<i>Quercus rubra</i>	Stem	70.0	3300.0	1.64	*
<i>Quercus alba</i>	Bark	6.0	25.3	-0.51	*
<i>Quercus velutina</i>	Stem	24.0	1984.0	0.49	*
<i>Quercus rubra</i>	Seed	--	3.9	-0.62	*
<i>Quercus stellata</i>	Stem	12.0	1680.0	0.22	*
<i>Quercus alba</i>	Stem	20.0	3800.0	2.07	*
<i>Quisqualis indica</i>	Fruit	--	33.0	-0.19	*
<i>Raphanus sativus</i>	Seed	--	40.0	-0.17	*
<i>Raphanus sativus</i>	Root	0.5	20.0	-0.31	*
<i>Rehmannia glutinosa</i>	Root	--	24.0	-0.26	*
<i>Rheum rhabarbarum</i>	Pt	2.0	35.0	1.0	*
<i>Rheum palmatum</i>	Rhizome	19.0	46.0	-0.53	*
<i>Rhizophora mangle</i>	Leaf	--	300.0	0.04	*
<i>Rhodymenia palmata</i>	Plant	--	37.0	-0.43	*
<i>Rhus copallina</i>	Leaf	8.0	480.0	0.34	*
<i>Rhus glabra</i>	Stem	3.0	134.0	-1.12	*
<i>Rhus copallina</i>	Stem	7.0	915.0	-0.44	*
<i>Ribes nigrum</i>	Fruit	0.5	27.0	-0.23	*
<i>Ribes uva-crispa</i>	Fruit	1.0	16.0	-0.3	*
<i>Ribes rubrum</i>	Fruit	1.0	15.0	-0.3	*
<i>Rosa canina</i>	Fruit	0.8	4.0	-0.38	*
<i>Rosa laevigata</i>	Fruit	--	59.0	-0.01	*
<i>Rosmarinus officinalis</i>	Leaf	10.0	30.0	-0.41	USDA's Ag Handbook 8 and sequelae)
<i>Rosmarinus officinalis</i>	Plant	18.0	19.0	-0.56	USDA's Ag Handbook 8 and sequelae)
<i>Rubia cordifolia</i>	Root	--	94.0	0.58	*
<i>Rubus idaeus</i>	Fruit	10.0	80.0	0.12	Revised USDA data received 1993.
<i>Rubus chingii</i>	Fruit	--	287.0	1.49	*
<i>Rubus chamaemorus</i>	Fruit	7.0	125.0	0.42	*
<i>Rubus idaeus</i>	Leaf	25.0	146.0	-0.22	*
<i>Rumex crispus</i>	Root	4.0	14.5	-0.37	*
<i>Rumex acetosa</i>	Leaf	6.0	60.0	-0.36	*
<i>Ruscus aculeatus</i>	Root	2.0	7.0	-0.46	*
<i>Salix alba</i>	Bark	1.0	6.6	-0.63	*
<i>Salvia miltiorrhiza</i>	Root	--	23.0	-0.27	Chen, H.C. and Lin, S.M. 1988. Determination of Mineral Elements in Certain Crude Drugs (Part 1), Kaohsiung J. Med. Sci., 4: 259-272.
<i>Salvia officinalis</i>	Leaf	0.5	3.0	-0.45	*
<i>Sambucus nigra</i>	Fruit	2.0	11.0	-0.33	*
<i>Sassafras albidum</i>	Stem	5.0	680.0	-0.65	*
<i>Sassafras albidum</i>	Leaf	23.0	1020.0	1.24	*
<i>Satureja</i>	Plant	--	61.0	-0.26	USDA's Ag Handbook 8 and sequelae)

Satureja hortensis	Leaf	--	61.0	-0.36	USDA's Ag Handbook 8 and sequelae)
Schisandra chinensis	Fruit	0.6	3.7	-0.38	*
Schizonepeta tenuifolia	Plant	--	68.0	-0.21	*
Scrophularia buergeriana	Root	--	18.0	-0.33	*
Scutellaria baicalensis	Root	18.0	29.0	-0.2	*
Scutellaria lateriflora	Plant	0.6	4.7	-0.66	*
Secale cereale	Seed	25.0	30.0	-0.29	USDA's Ag Handbook 8 and sequelae)
Senna obtusifolia	Seed	10.0	14.0	-0.49	*
Senna alexandrina	Leaf	2.0	8.0	-0.45	*
Senna occidentalis	Seed	--	42.0	-0.14	*
Serenoa repens	Fruit	1.2	8.9	-0.34	Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
Sesamum indicum	Seed	--	14.0	-0.49	USDA's Ag Handbook 8 and sequelae)
Siegesbeckia orientalis	Plant	--	231.0	0.96	*
Silybum marianum	Plant	--	14.7	-0.59	Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
Silybum marianum	Leaf	3.2	14.7	-0.44	*
Simmondsia chinensis	Seed	--	21.0	-0.41	*
Sinapis alba	Seed	21.0	41.0	-0.16	*
Sinomenium acutum	Rhizome	--	21.0	-0.7	*
Smilax officinalis	Root	1.2	5.7	-0.48	*
Smilax spp	Root	1.2	5.7	-0.48	*
Solanum melongena	Fruit	1.4	40.0	-0.14	*
Solanum tuberosum	Tuber	1.3	22.0	-0.48	*
Sophora subprostrata	Root	--	14.0	-0.38	*
Sophora angustifolia	Root	28.0	42.0	-0.04	*
Sorbus aucubaria	Fruit	12.0	75.0	0.09	*
Spinacia oleracea	Plant	3.0	485.0	2.78	*
Spirulina spp.	Plant	--	16.0	-0.58	*
Spondias dulcis	Fruit	--	1.2	-0.4	*
Spondias tuberosa	Fruit	--	0.95	-0.4	*
Stachys officinalis	Plant	3.2	19.0	-0.56	*
Stellaria media	Plant	0.4	5.3	-0.66	*
Stevia rebaudiana	Leaf	--	147.0	-0.22	Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
Syphoricarpos orbiculatus	Stem	19.0	2640.0	1.06	*
Symphytum officinale	Leaf	0.6	5.8	-0.45	*
Symphytum officinale	Root	--	67.0	0.25	Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
Syzygium	Flower	100.0	1200.0	3.85	*

Syzygium aromaticum	Fruit	100.0	1200.0	7.51	*
Tabebuia heptaphylla	Bark	0.5	2.7	-0.66	*
Tanacetum parthenium	Plant	--	8.1	-0.64	Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
Taraxacum officinale	Plant	100.0	130.0	0.24	*
Taraxacum mongolicum	Plant	--	178.0	0.58	*
Taraxacum officinale	Leaf	14.0	206.0	-0.12	*
Taraxacum officinale	Root	1.0	6.8	-0.46	*
Tephrosia candida	Plant	--	38.0	-0.42	*
Tetrapanax papyrifera	Pith	--	43.0	-1.0	*
Thymus vulgaris	Leaf	1.0	6.4	-0.45	*
Trachyspermum ammi	Fruit	--	33.1	-0.19	*
Tragopogon porrifolius	Root	--	12.0	-0.4	*
Trifolium pratense	Hay	25.0	464.0	1.0	*
Trifolium pratense	Flower	1.0	5.9	-0.37	*
Trigonella foenum-graecum	Seed	0.3	2.1	-0.64	*
Triticum aestivum	Seed	--	86.0	0.4	*
Triticum aestivum	Plant	--	105.0	0.06	*
Turnera diffusa	Leaf	1.1	5.4	-0.45	*
Tussilago farfara	Flower	--	25.0	-0.3	*
Ulmus rubra	Bark	0.3	1.9	-0.66	*
Urtica dioica	Leaf	2.0	7.8	-0.45	*
Urtica dioica	Seed	--	12.0	-0.52	*
Urtica dioica	Root	--	7.0	-0.46	*
Vaccinium vitis-idaea	Leaf	--	2500.0	3.7	*
Vaccinium myrtillus	Fruit	7.0	91.0	0.2	*
Vaccinium vitis-idaea	Fruit	28.0	250.0	1.24	*
Vaccinium macrocarpon	Fruit	0.6	5.0	-0.37	*
Vaccinium myrtillus	Leaf	--	2500.0	3.7	List, P.H. and Horhammer, L., Hager's Handbuch der Pharmazeutischen Praxis, Vols. 2-6, Springer-Verlag, Berlin, 1969-1979.
Vaccinium corymbosum	Fruit	3.0	20.0	-0.27	*
Valeriana officinalis	Root	0.7	5.6	-0.48	*
Valerianella locusta	Plant	179.0	201.0	0.75	*
Valerianella radicata	Plant	27.1	28.6	-0.49	*
Verbascum thapsus	Leaf	5.3	12.0	-0.44	*
Viburnum opulus	Bark	--	49.0	-0.35	Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
Vigna unguiculata	Seed	5.6	240.0	2.32	*

	Seedling				
Vigna aconitifolia	Seed	18.0	20.0	-0.42	*
Vigna radiata	Seed	9.6	12.2	-0.51	USDA's Ag Handbook 8 and sequelae)
Vigna unguiculata	Seed	16.0	17.0	-0.45	USDA's Ag Handbook 8 and sequelae)
Vigna angularis	Seed	17.0	20.0	-0.42	*
Viscum album	Leaf	--	159.0	-0.2	*
Vitis vinifera	Fruit	0.5	54.0	-0.05	*
Vitis vinifera	Stem	--	986.0	-0.38	Pedersen, M. 1987. Nutritional Herbology. Pederson Publishing. Bountiful, Utah. 377 pp.
Xanthosoma sagittifolium	Root	1.7	11.3	-0.41	*
Yucca baccata	Root	0.1	0.6	-0.54	*
Zea mays	Silk Stigma Style	--	34.0	-1.0	*
Zea mays	Seed	0.84	63.0	0.12	*
Zingiber officinale	Root	2.4	33.8	-0.14	*
Zingiber officinale	Rhizome	106.0	350.0	1.5	*
Zizyphus jujuba	Fruit	--	10.0	-0.34	*